



**City of Indianapolis
Federal Emergency Management Agency
Cooperating Technical Community**

Agreement 00-03 - Hydrologic and Hydraulic Analyses and Floodplain Mapping

In accordance with the CTC Memorandum of Agreement dated August 8, 2000 between the City of Indianapolis and the Federal Emergency Management Agency, Task Agreement 00-03 is as follows:

1. **Objective and Scope:** The objective of this agreement is to develop detailed hydraulic analyses and floodplain and floodway mapping in City of Indianapolis. Analyses will be of the 10%, 2%, 1%, and 0.2% annual chance floods and floodway representing existing conditions. Hydrologic analyses will be completed for approximately 17 square miles of drainage area and hydraulic analysis and floodplain mapping for approximately 14 linear miles of flooding along Little Buck Creek. Delineations will be provided for the 1% and 0.2% annual chance floodplains and floodway and will be used by FEMA to revise the January 05, 2001 Flood Insurance Study (FIS) and Flood Insurance Rate Map (FIRM) for Marion County, Indiana.
2. **Period of Performance:** This Mapping Activity will begin on August 8, 2000 and end no later than October 1, 2001. This Mapping Agreement may be terminated at the option of FEMA or City of Indianapolis in accordance with the provisions of the August 8, 2000 CTC Memorandum of Agreement.
3. **Funding/Cost-Sharing:** The estimated cost to the City to complete this Mapping Activity is estimated to be approximately . City of Indianapolis is willing to cost-share the funds required for the City or its study contractor to perform this Mapping Activity with FEMA on a 25% City / 75% FEMA basis. Therefore, approximately of the required funding is to be paid by FEMA, with the remainder coming from the City.
4. **Standards:** The following standards and documents are relevant to this Mapping Activity:
 - Detailed hydrologic and hydraulic analyses and floodplain mapping must follow the standards set forth in FEMA 37, *Guidelines and Specifications for Study Contractors* (January 1995) and Title 44 of the Code of Federal Regulations (CFR), Part 65. FEMA 37 is available at FEMA's website at http://www.fema.gov/mit/tsd/EN_reg.htm.
 - Computer models used for hydrologic and/or hydraulic analyses must meet the requirements of 44 CFR 65.6(a)(6) and be on FEMA's *Numerical Models Accepted by FEMA for NFIP Usage* (http://www.fema.gov/mit/tsd/EN_modl.htm).
 - Topographic mapping used to delineate floodplain and floodway boundaries must be of adequate scale and topographic definition to provide reasonable accuracy. Planimetric features must be compatible with the base map (with respect to horizontal accuracy) to be used by FEMA for Digital FIRM production.

Changed hydraulic conditions and/or significant discrepancies in stream distance between the profile and topographic mapping indicate the need for updated hydraulic analyses and may preclude the completion of this Task Agreement for some flooding sources.

- Work maps must comply with the requirements outlined in Chapter 9 of FEMA 37. The work maps should include the 1% and 0.2% annual chance floodplain boundaries; floodway limits; cross sections; and BFE and Flood Insurance Zone labels.
- Digital mapping submissions must comply with the requirements of Chapter 9 and Appendix 7 of FEMA 37.

5. Products: City of Indianapolis shall make the following products available:

- Digitized topographic work maps depicting the revised 1% and 0.2% annual chance floodplain boundaries; floodway limits; cross sections; and BFE and Flood Insurance Zone labels.
- Form number 5 of *Revisions to National Flood Insurance Program Maps, Application/Certification Forms and Instructions* (MT-2).

6. Schedule and Milestones:

Milestone 1: Activities to be completed for the first milestone include:

- Selection of suitable topographic data for floodplain delineation, including comparison of planimetric features (such as roads) to the base map planned for use by FEMA for Digital FIRM production.
- Comparison of FIS flood profiles to existing hydraulic conditions.
- Verification of the compatibility of the FIS flood profile baselines to the streamlines on the selected topographic data.
- Final selection of flooding sources and limits to be redelineated.

Upon completion, products for the first milestone will be provided to the FEMA Project Officer. These include:

- Documentation of the proposed source of topographic data, including: scale; contour interval; source/methodology; date of survey/data collection; vertical and horizontal datums; and comparison of planimetric features with the Digital FIRM base map planned for use by FEMA.
- A written assessment of the appropriateness of utilizing the FIS flood profiles for this Task Agreement.
- Annotated copies of effective FIRMs depicting limits of proposed floodplain revisions. This will include both the first group of streams to be redelineated (Attachment A) as well as other streams that are found to be appropriate for redelineation.
- Redelineation of Devon Creek, tributary to the Fall Creek as a pilot project.

Products for Milestone 1 will be submitted to the FEMA Project Officer no later than July 1, 2000.

Milestone 2 (Final Product): Activities to be completed for the second milestone include:

- Locate cross sections and flood elevations on topographic mapping.
- Delineate 1% and 0.2% annual chance floodplain boundaries and floodway limits.
- Add BFE and Flood Insurance Zone labels.

Upon completion, final products will be provided to the FEMA project Officer. These include:

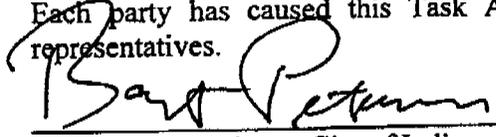
- Digital Topographic work maps depicting 1% and 0.2% annual chance floodplain boundaries; floodway limits; and BFE and Flood Insurance Zone labels for the remaining flooding sources associated with the first group of streams to be redelineated as noted in Attachment A.
- Completed form number 5 of *Revisions to National Flood Insurance Program Maps, Application/Certification Forms and Instructions (MT-2)*.

Final products will be submitted to the FEMA Project Officer no later than August 1, 2001.

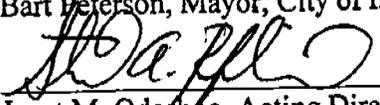
- 7. Certification:** The following certifications apply to this Mapping Activity (as appropriate):
 - Topographic information must be certified by a registered professional engineer or licensed land surveyor in accordance with 44 CFR 65.5(c).
 - If fill is to be considered in the mapping to raise land areas above the 1% annual chance flood elevation, certification of the fill must be provided in accordance with 44 CFR 65.5(a)(6) by the community's NFIP permit official, a registered professional engineer, or a licensed land surveyor.
- 8. Technical Assistance and Resources:** City of Indianapolis may obtain copies of effective FIS hydraulic models, FEMA-issued Letters of Map Change (LOMC), and archived engineering backup data from FEMA's Mapping Coordination Contractor (MCC). The MCC may be contacted at 1-877 FEMA MAP. Specific technical and programmatic support may be provided through FEMA's MCC; such assistance should be requested through the FEMA Project Officer specified in Section 11 of this agreement.
- 9. Subcontractors:** This Task Agreement will be performed by Christopher B. Burke Engineering, Ltd. (CBBEL) on behalf of the City Of Indianapolis. Procurement of subcontractors using Federal funds provided as part of this Mapping Activity must comply with the requirements of 44 CFR 13.36.
- 10. QA/QC Procedures:** The Quality Assurance procedures outlined in Chapter 10 of FEMA 37 should be followed during the development of the revised floodplain boundaries. The mapping should be independently reviewed for compliance with the standards defined in Section 4 of this agreement. FEMA's Map Coordination Contractor, the IDNR, or others approved by the FEMA Project Officer and the CTC Project Manager will conduct this independent review.

11. **Points of Contact:** The FEMA Project Officer is Kenneth Hinterlong and the CTC's Project Manager is Donna Price, or subsequent personnel of comparable experience who are appointed to fulfill these responsibilities.

Each party has caused this Task Agreement to be executed by its duly authorized representatives.


Bart Deterson, Mayor, City of Indianapolis

8/14/00
date


for Janet M. Odesnoo, Acting Director, FEMA Region V

9/25/00
date

ATTACHMENT A

City of Indianapolis Flooding Sources Appropriate for Redelineation (first group)

FLOODING SOURCE	MAP TYPE	PANEL NUMBER(S)	MAP DATE	DESCRIPTION OF REACH
Devon Creek	DFIRM	153	1/05/01	The entire detailed-studied reach of the stream
Strange Creek	DFIRM	63	1/05/01	The entire detailed-studied reach of the stream
Dry Run Diversion	DFIRM	136	1/05/01	The entire detailed-studied reach of the stream
Delaware Creek	DFIRM	37	1/05/01	The entire detailed-studied reach of the stream

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7/25/2000